sembles other simple organisms, and that the essential difference between one strain and another depends on variations in these factors, and they therefore classify the bacilli as *dysgonic*, those that grow with difficulty on artificial media, and as *eugonic*, those that grow readily on the same media.

The bearings of the results obtained are thus summarised:—

"There can be no doubt that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis, and that in the majority of these cases the disease is introduced through cow's milk. Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of tuberculous milk." The details of the various experiments are published in the appendix, in which Dr. Eastwood gives a full description of the histology of the lesions in the various animals inoculated, and of the bacteriology of the bacilli isolated from them, together with the methods employed. This appendix is a volume of 300 pages, illustrated with tables and charts, and must rank as a first-rate piece of work. Dr. Eastwood concludes that there is an essential unity, not only in the nature of the morbid processes induced by human and bovine tubercle bacilli, but also in the bacteriological characters of the tubercle bacilli which cause these processes.

As regards the minutes of evidence taken before the Vivisection Commission,[1] the witnesses so far called include Mr. W. P. Byrne, C.B., who discussed the procedure of the Home Office in the granting of licences and in the administration of the present Act; Mr. G. D. Thane, Sir J. Russell, and Sir W. Thornley Stoker, the official inspectors under the Act; Mrs. K. Cook and Dr. Snow, representing anti-vivisection associations; Mr. Stockman, chief veterinary officer of the Board of Agriculture; and Prof. Starling.

As already suggested, the work of the Royal Commission on Tuberculosis, reviewed above, affords one of the most striking examples of the necessity for, and of the value of, experiments on animals, and the evidence so far given before the Vivisection Commission has brought out the fact of the scrupulous observance of the conditions of their licences by the various holders of the same, of the complete absence of that cruelty and callousness for which the experimenters have been assailed by those who advocate the abolition of vivisection, and of the absolute necessity for the experimental method in the medical and biological sciences if these are to advance. The inspectors seem agreed that there is no need for more inspection in order to check abuses. Surprise visits can be, and are, paid at any time, and what each worker is doing is known to the Home Office.

NOTES.

The absence of official representatives of the British Government at the celebrations connected with the opening of the Carnegie Institute at Pittsburg formed the subject of questions asked in both Houses of Parliament on Monday. The replies were to the effect that our Ambassador to the United States was prevented by other engagements from attending the celebrations; and Lord Fitzmaurice added:—"I am exceedingly glad of the opportunity publicly to state how much His Majesty's Government, and our Ambassador at Washington, appreciate the importance of that occasion." In his explanation to the House of Commons Mr. Runciman said:—"Neither the German, Austro-Hungarian, French, nor Russian Embassies were represented at Pittsburg. It is understood that the Universities of Oxford and Cambridge were represented at the celebrations at Pittsburg, and on such an occasion the presence of members of the greatest educational institutions of the country would appear to be the form of representation most suitable and convenient." The explanations do not appear to us to be entirely satisfactory. That representatives of British universities were present at Pittsburg is not a circumstance for which the Government can claim any credit. If these guests of Mr. Carnegie had been asked to represent the Government on the occasion the case would have been different, but no official notice was taken of them or of the event. When every allowance has been made, the fact remains that the German Emperor took advantage of an opportunity to show his interest in the advancement of knowledge, and that the British Government failed to do so.

A medallion in memory of the late Pierre Curie, by M. Vernier, has been placed on the wall of his laboratory at the Ecole municipale de Physique et de Chemie, Paris.

On May 6, 8, and 10, Prof. W. Wright will deliver three Hunterian lectures of the Royal College of Surgeons on "The Prehistoric and Early Historic Inhabitants of England."

Dr. G. O. Smith has been appointed director of the U.S. Geological Survey to fill the vacancy caused by the election of Dr. C. D. Walcott to the secretaryship of the Smithsonian Institution.

On Saturday next, May 4, Prof. W. C. McIntosh will begin a course of two lectures at the Royal Institution on "Scientific Work in the Sea Fisheries." The Friday evening discourse on May 3 will be delivered by Sir James Crichton Browne, on "Dexterity and the Bend Sinister," and on May 10 by Signor Com^{e} Giacomo Boni, on "Recent Excavations on the Forum Romanum, and the Forum Ulpium."

The death is announced, on Saturday, April 13, of Mr. C. L. Griesbach, C.I.E., formerly director of the Geological Survey of India. Born in Vienna on December 11, 1847, he was educated in the university of that city. Afterwards coming to England, he was appointed to the Geological Survey of India in 1878, made director of it in 1894, and retired from the post in 1903. His most important geological work was done beyond the frontiers of British India, and especially in Afghanistan, which he visited first with the Canadian field force in the Afghan war, again with the Afghan Boundary Commission in 1884–6, and for a third time as adviser to the Amir in 1888–9. His descriptions are still the only available sources of information regarding the geology of much of the country seen by him on these occasions. The popular idea, that a desire to avoid military service is the reason why foreigners settle in this country, was not borne out by Mr. Griesbach, who joined the British Army shortly after his arrival in England, saw active service in Candahar, was mentioned in despatches, earned war medals and clasps, and was made a C.I.E. for his services with the Afghan Boundary Commission.

We regret to learn of the death, on Saturday last, of Mr. George E. Davis, the founder and editor of the *Chemical Trade Journal*. Mr. Davis was one of the original fellows, and subsequently a member of council, of the Institute of Chemistry, a fellow of the Chemical Society, and he took a prominent part in the inauguration of the Society of Chemical Industry, filling in succession the offices of honorary secretary, member of council, chairman of the Manchester section, and vice-president. Mr. Davis contributed largely to chemical, technological, and microscopical literature. His "Handbook of Chemical Engineering" was published in 1901, and his other collected works include "Sizing and Mildew in Cotton Goods" (written in conjunction with Dr. Dreyfus and Mr. Philip Holland), "The River Irwell and its Tributaries" (of which he was co-author with his brother, Mr. Alfred R. Davis), and numerous other miscellaneous pamphlets, lectures, &c. From its commencement in 1887 he acted as editor-in-chief of the *Chemical Trade Journal*. Mr. Davis was in his fifty-seventh year.

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[1] Royal Commission on Vivisection. Appendix to First Report of the Commissioners. Minutes of Evidence, October to December, 1906.

After a sojourn of nearly a quarter of a century in Brazil, Dr. E. Goeldi has felt it necessary to resign the directorship of the museum which now bears his own name at Pará. He is succeeded by his colleague, Dr. J. Huber, who has hitherto had charge of the botanical section. The State Government of Pará has issued an appreciative notice of Dr. Goeldi's services in connection with the museum.

We have received a copy of the *Photographic Monthly* for April, which contains reproductions of Mr. J. P. Millar's photographs of young cuckoos in the act of ejecting their fellow-occupants of nests. Most, if not all, of these pictures have already appeared in a little work by Mr. W. P. Westall, which has been noticed in our columns.

The aphides of the genus Chermes infesting conifers in Colorado form the subject of the first article in the Proceedings of the Philadelphia Academy for the current year. Several species occur which have life-histories of the same general type as that of the European *Chermes abietis*, both hibernating and migratory females being produced. New and other orthopterous insects from Arizona are described by Mr. J. A. G. Rehn in the second article.

Two important articles are contained in the issues of *Biologisches Centralblatt* for March 15 and April 1, the one, by Dr. Max Wolff, on the spinal cord of the lancelet, and the other, by Mr. A. Mordwilko, on the biological relationship existing between ants and plant-lice. In the former attention is specially directed to the morphology and genesis of the cord, certain very remarkable conclusions being reached with regard to the origin of its central canal. The nature of "symphilism" and its relation to parasitism is discussed in the latter.

Among the contents of vol. xli., part iii., of the *Journal of Anatomy and Physiology*, special reference may be made to an article by Messrs. A. Keith and M. Flack on the form and nature of the muscular connections between the primary divisions of the vertebrate heart. One of the most important conclusions relates to the existence in mammalian hearts of a remnant of primitive fibres at the sino-auricular junction. These fibres, which are intimately connected with the vagus and sympathetic nerves, have a special arterial supply, and it is in them that the dominating rhythm of the heart is believed normally to arise. Considerable interest also attaches to the description, by Mr. C. A. Hill, of a female skeleton, apparently referable to the Bronze age, from a cave in Littondale, Yorkshire.

In discussing polygamy and other mating habits among birds in the March number of the *American Naturalist*, Dr. R. W. Shufeldt refers to the imperfection of our knowledge on this subject in the case of many groups, stating, for example, that he cannot find out whether kiwis and brush-turkeys are polygamous or monogamous. Although birds may be polygamists, monogamists, or in certain conditions given to practices similar to polyandry, or even, possibly, to polyandry itself, we have no information with regard to the origin, causes, and, in most instances, the needs of these divergent habits. It is, however, more easy in many cases to explain the radical changes which take place in these respects as the result of domestication. It may be added that the author disbelieves in the existence of any close relationship between kiwis and other struthious birds, or between the latter and tinamous. "A kiwi (Apteryx)," he writes, "is no nearer an ostrich, and an ostrich to a tinamou, than a limpkin (Aramus) is to a bustard, and a bustard (Otis) to a quail (Colinus)."

In the April number of the *Quarterly Review*, Prof. J. C. Ewart, of Edinburgh, discusses recent opinions and theories relating to the origin of the modern horse. After reviewing the early history of the horse-stem (throughout which the name Protorohippus is misspelt Proterohippus), the author states that he recognises three equine types as having existed in Europe about the close of the Glacial type, namely, the steppe, the forest, and the plateau type. Without entering into the consideration of all the characteristics of these, it may be mentioned that, according to the evidence of skulls from a Roman fort at Newstead, the forest type is distinguished by the face being placed nearly in the plane of the basicranial axis, whereas in the steppe type (to which the Mongolian Przewalski's horse is stated to conform, if, indeed, it be not the exemplar) the former is sharply bent down at an angle to the latter. According to the author, the skull of the celebrated thoroughbred "Stockwell" conforms very closely in this respect to the steppe type, and is altogether different from the plateau or Libyan type, although agreeing with the latter in the characters of the cervico-dorsal vertebræ. If such mixed features really exist in one and the same skeleton, there would seem little hope of an early settlement of the problem of the origin of the thoroughbred.

A memoir on "Variation and Correlation in Ceratophyllum," by Prof. Raymond Pearl, with the assistance of Miss O. M. Pepper and Miss F. J. Hagle, has been published by the Carnegie Institution of Washington. The memoir deals, on somewhat novel lines, with the variation in the number of leaves to a whorl (and other characters), with especial reference to the laws of growth. It is shown that the mean number of leaves to a whorl y is related to the ordinal position of the whorl from the base of the branch x by a relation of the form $y = \text{A} + \text{B}. \log (x - \text{C})$, the mean increasing rapidly at first and then more slowly. For a branch of a given order the constant A alone varies in populations from different environments, *i.e.* the means vary, but not the form of the law by which the successive whorls are differentiated. In branches of successive orders the constant B tends to increase, the mean number of leaves to a whorl tending towards the final limit with greater rapidity in secondary as compared with primary branches. The variability of the whorls decreases from the base of the branch onwards, successive whorls being produced "with ever-increasing constancy to their type, the ultimate limit towards which the process is tending being absolute constancy," and an analogy is drawn between this law and the perfection of an action by repetition or practice. The author believes that both laws are of considerable generality, and apply to other organisms.

WRITING on the anti-opium drug in the Journal of the Federated Malay States Museums (December, 1906), Mr. L. Wray identifies the plant as *Combretum sundaicum*, and describes the method of making an infusion from the roasted twigs and leaves. This is mixed with a decoction of burnt opium, and it is possible that the latter supplies part of the curative effect. In the same number Mr. H. C. Robinson contributes a list of the birds found on the Aroa Islands, in the Straits of Malacca.

REFERENCE is made to a new klinostat—the instrument used to counteract the influence of gravity—designed by Dr. P. van Harreveld in *Recueil des Travaux botaniques Néerlandais*, vol. iii. The author tested several instruments by means of an automatic chronograph device, from which he concluded that a periodic irregularity could always be detected. This is important, since the repetition of a very weak stimulus at regular intervals is cumulative, and will in time induce curvature. The essential features of the author's klinostat are that it is weight driven, the impulses being suitably moderated, and regulation is effected by independent electromagnetic mechanism.

IN his report for the year 1905, Mr. J. H. Maiden, the director of the botanic gardens and public domains, Sydney, New South Wales, announces that the changes connected with the re-grading of the botanic garden have been completed after five years' work. Reference is made to the work of a previous director, Mr. Charles Moore, who died during the year. Among the Australian garden plants that attracted attention when flowering were *Thymalium Billardierii*, *Euroschinus falcatus*, and *Kennedya procurrens*, the last being a new introduction of New South Wales origin.

AN article by Mr. R. S. Pearson on the level of subsoil waters with regard to forests is published in the *Indian Forester* (February). Comparing the levels inside and outside forests, they are always higher outside; in an area of low rainfall the difference of levels is greater than where the rainfall is more abundant, and the level is steadier inside than outside the forest. These results are explained by the facts that the trees intercept a portion of the rain water and make a heavier demand on the water supply than agricultural crops. Sir Dietrich Brandis contributes a note on *Mastixia euonymoides*, with a figure of the stem section, and Mr. B. O. Coventry supplies photographs of the Changa Manga plantation in the Punjab, showing the cultivation of the *shisham* tree, *Dalbergia Sissoo*.

IT has been shown by Prof. G. Klebs that remarkable metamorphoses can be produced in plants by artificial methods of cultivation. His latest contribution, that was published in the *Abhandlungen der naturforschenden Gesellschaft*, Halle (vol. xxv.), gives some account of the results that he obtained. Four species of Sempervivum were selected for experiment, because abnormality of structure has rarely been recorded for the genus. The method consisted in removing the terminal inflorescences from plants that had been stimulated by heavy manuring or exposure to strong sunlight, when lateral flowers or inflorescences showing intense variation were developed. Irregularities in number and shape of the parts of the flower, changes from one part to another, and vegetative developments occurred, perhaps the most striking being the combination of staminal and carpellary structures. These and experiments with *Veronica chamaedrys* and other plants lead the author to the opinion that new *races* can arise as a result of changes in external conditions.

FROM a second memorandum on the American gooseberry mildew (*Sphaerotheca mors-uvae*), just issued by the Board of Agriculture and Fisheries, we learn that during the winter of 1906–7 the presence of the mildew in certain gardens in Worcestershire was definitely confirmed, and the cases investigated under the auspices of the Worcestershire County Council. Reports sent to the Board have shown that the extent and seriousness of the disease are much greater than was at first supposed, and in view of the increased danger of infection which arises when the mildew passes into its summer stage the Board advises all gooseberry growers to watch the plants closely during the summer months, especially those bushes which have been recently bought, in order that the disease may be detected and dealt with at the earliest possible moment. Gooseberry growers who have the least reason to suspect infection are advised to spray their bushes with a solution of liver of sulphur (potassium sulphide) from the time the leaves open until the fruit is set. A solution of half an ounce to a gallon and a half of water is recommended for the first spraying, and the strength should be increased to a solution of half an ounce to one gallon of water at the second spraying. Details as to the examination and treatment of plants in order to prevent the spread of the disease are given in the Board's new circular, which can be obtained post-free on application.

THE Bulletin of the Manila Weather Bureau for August, 1906, contains a reproduction of what is probably the only complete seismogram of the Valparaiso earthquake in existence. The distance from the centres of the North Pacific and Chilian earthquakes of August 17 was such that the disturbance due to the former had practically died out before the arrival of the latter; the first preliminary tremors commenced at 1h. 1·3m. Greenwich time, and lasted until about 1h. 21m. The instrument being a Vicentini microseismograph, with a vertical pendulum of 1·5 metres length, the third-phase waves, which give the greatest amplitude with a slow-period horizontal pendulum, are of small size, and it is largely due to this that the earlier phases of the record of the Valparaiso shock are so little complicated by the end portion of the preceding one.

THE Geological Survey of Western Australia has issued another report (Bulletin No. 24) of the special series dealing with different mineral fields of the State. The report, which covers seventy-nine pages, and the accompanying thirteen maps and twenty-six plates, represent the results of the work of Mr. C. G. Gibson in the Laverton, Burtville and Erlistoun auriferous belt, Mt. Margaret Goldfield. In Bulletin No. 25 Dr. R. Logan Jack discusses the prospects of obtaining artesian water in the Kimberley district, Western Australia. He passes in review nine distinct areas in which he anticipates more or less success in the search for artesian water.

THE richness and complexity of its deposits have given to mining in the Cobalt district of Canada special interest, and much valuable information regarding this new silver-mining district is contained in an admirably illustrated article by Mr. J. E. Hardman in the *Engineering Magazine* (vol. xxxiii., No. 1). The first discovery of silver was made in the district in July, 1903, and the progress made since that date is described in detail. The characteristic rocks of the region are conglomerates of Lower Huronian age, through which, and sometimes through the underlying diabase, pass calciferous veins carrying metallic silver and sulphides or arsenides of silver with smaltite and niccolite, the arsenides of cobalt and nickel. The veins occur along the main lines of fracture by which the conglomerate has been shattered. As to the permanency of the deposits, very different opinions have been expressed, but with increasing experience the trend of opinion is towards a long life for the district.

In addition to the usual record of measurements taken during the year 1906 at Epsom College, the report of the college Natural History Society for last year gives the average height, weight, and chest girth of all boys who have been measured in the ten years 1897–1906, and a chart showing average grades of development for the same period. On the whole, the average Epsom College boy would appear to be rather superior in physique than inferior to the average public-school boy. One marked exception is evident in the curves for the ages 17 yr. 10 mo. to 18 yr. 4 mo., though it must be stated that the number of observations on which the curves are based is, for these months, much smaller than the rest. Boys at Epsom College between these ages, however, during the last ten years appear to have been on a lower physical grade than at other ages. The other contents of the society's report show that excellent field work continues to be done by the members, among whom geology, botany and meteorology appear to be equally popular.

The subject of the perception of relief was discussed in letters to Nature of January 3 and 31 last (vol. lxxv., pp. 224 and 321), and the same question is raised in a communication received from Mr. R. T. A. Innes, of the Transvaal Meteorological Department. Mr. Innes describes a method of seeing stereoscopic pictures in relief without the use of a stereoscope, explained to him by Colonel W. G. Morris. If while steadily viewing a distant object an index finger be held before the eyes, two images of it are seen; if now the other index finger be held before the eyes also, four images will be seen. By a little adjustment of the distance of the fingers from the eye, the two central images can be superposed. The substitution of a stereoscopic picture leads to similar results, and the superposed images give the idea of relief.

Mr. F. A. Lindemann and Mr. C. L. Lindemann, writing from Darmstadt, describe a new glass which is transparent to rays of very short wave-length. They have found that lithium biborieum, $Li_2B_4O_7$ (ordinary borax in which the sodium is replaced by lithium), when fused produces a clear glass which shows no appreciable absorption in the ultra-violet spectrum above 2000 Å. The aluminium line 1856 is distinctly visible, though somewhat weakened, if the glass be too thick. In order to determine the absorption below this a vacuum spectrograph would naturally be required, as the air absorbs any lines shorter than 1856. The refractive index for the D-line $n=1{\cdot}5389$, the dispersion Δ between e and F, $\Delta=0{\cdot}00847$, and $v=n-1/\Delta=63{\cdot}7$. As might be expected, owing to the large percentage (82·5) of boracic acid, the dispersion toward the red side of the spectrum is fairly large, whereas that toward the violet side is very small. The glass is extremely transparent to Röntgen rays, which it lets through, roughly, ten times as well as ordinary glass. The specific gravity is 2·2; the hardness, 6. The glass can be cut and polished without difficulty. The cubical expansion coefficient (calculated from the constants of Winkelmann and Schott) is $118{\cdot}10^{-7}$, about half that of ordinary glass. It has been found that, as a general rule, the transparency for rays of short wave-length increases in analogous salts as the atomic weight of the metal decreases, but sufficient experimental data have not yet been obtained to warrant the publication of a definite formula.

A new high-tension condenser on the Moscicki principle is likely to prove a useful commercial apparatus if, after testing in practical work, it fulfils the advantages claimed for it in a very complete and interesting pamphlet which we have received from Messrs. Isenthal and Co., who are agents for the makers. A condenser made on this principle is now on view in London, and the construction is very neat and convenient, any number of condenser elements being grouped together in a battery very easily according to the voltage required. The chief advantages claimed over other condensers are the (1) strengthening of the dielectric to minimise the chances of rupture; (2) perfect contact between dielectric and armature plates; (3) prevention of local heating by means of a cooling chamber; (4) no organic substances used. These condensers have been used successfully for the protection of live wires against atmospheric discharges; wireless telegraphy; suppression of lag in alternating currents; and in X-ray work; and the construction of the condenser certainly renders it much less liable to breakdowns, which in practical work prove very serious. The opening in wireless telegraphy work alone for a condenser which can be depended upon is very great, and the new condenser will no doubt be given a thorough trial in many ways, as a practical commercial condenser has long been demanded.

A second communication on anode rays is published by Messrs. Gehrcke and Reichenheim in No. 4 of the *Verhandlungen* of the German Physical Society (compare Nature, this vol., p. 173). An arrangement of apparatus is described by means of which the phenomena produced are made very striking by using high potentials obtained with anodes permitting of more continuous working in a high vacuum. A brilliant fluorescence is observed on permitting the "rays" from the anode to impinge on a mica screen or on the glass walls of the vacuum tube. The colour of the fluorescence is the same as that of the emission spectrum of the metal present in the salt used at the anode; thus with lithium carbonate the light is reddish in colour, and in the spectroscope shows the red and orange lines of lithium. The admixture of another substance, such as graphite or zinc dust, with the salt used as anode facilitates the formation and improves the character of the rays. It is noteworthy that the anode rays cannot be produced from a cold anode, and that usually some interval elapses, during which heating occurs, after the current has been switched on before they make their appearance. The volatilisation of the salt may therefore play an important part in their production.

Since "synthetic" indigo was put upon the market in 1897, some uncertainty has existed regarding its tinctorial value as compared with the natural dyestuff. The makers of synthetic indigo have maintained that the only significant constituent of natural indigo is indigotin, identical with the synthetic substance, and that the other components present in the natural dye are either inert or harmful impurities. On the other hand, certain practical dyers have held that the natural dye gives a certain richness of shade, or "bloom," which is invariably absent from goods dyed with synthetic indigo. The results of a practical dye test of the two materials, made with the object of throwing light on this disputed question, are described by Mr. Cyril Bergtheil in a report to the Bihar Planters' Association. The conditions were such as to be strictly comparable for the two materials as regards concentration of dye bath, temperature, and fabric dyed. The results obtained, working on the large scale under practical conditions and with dye baths of the same strength, were such as to uphold the objection of the dyers already referred to against the synthetic dye. Natural indigo not only gave a richer shade with the characteristic "bloom," but also actually a darker shade. The difference between the natural and synthetic material, which is hardly apparent in dyeing trials made on the small scale, appears to become of considerable importance under conditions such as exist in actual practice.

THE third fasciculus of the first volume of Prof. O. D. Chwolson's "Traité de Physique," which is being translated from the Russian and German editions into French by M. E. Davaux, and supplied with notes on theoretical physics by MM. E. and F. Cosserat, has been received from M. A. Hermann, of Paris, who is publishing the work. Two previous parts of this excellent treatise were reviewed at length in our issue for February 15, 1906 (vol. lxxiii., p. 362), and it is unnecessary on this occasion to say more than that the present part deals with the liquid and solid states of bodies, and maintains the same high standard which characterised the previous issues.

THE Chemical Publishing Co., of Easton, Pa., has just published "Inorganic Chemistry for Schools and Colleges," by Mr. J. L. Howe. The book is an enlarged and revised edition of "Inorganic Chemistry according to the Periodic Law," by Prof. F. P. Venable and Mr. Howe. The number of experiments has been increased, and prominence has been given to the applications of chemistry. The book is published in this country by Messrs. Williams and Norgate.

IN the new issue of section i. of the catalogue of Mr. Charles Baker, of High Holborn, London, microscopists will find detailed information of a great variety of microscopes and accessory apparatus.

A SIXTH edition of "The Essentials of Chemical Physiology," by Prof. W. D. Halliburton, F.R.S., has been published by Messrs. Longmans, Green and Co. The book has been subjected to a thorough revision, and many parts have been re-written in order to incorporate recent advances in the knowledge of the proteins and of the way they are utilised in the body, together with the results of other researches.

THE authorised English translation of Dr. Ludwig Jost's "Lectures on Plant Physiology," done by Prof. R. J. Harvey Gibson, of Liverpool, will be issued very shortly by the Clarendon Press. The Press also announces the second volume of Dr. Paul Knuth's "Handbook of Flower Pollination," translated by Prof. J. R. Ainsworth Davis, of Aberystwyth, containing an account of all known observations upon the pollination of the flowers of plants of arctic and temperate zones.

A THIRD edition of the late Mr. Herbert E. Wright's "Handy Book for Brewers" has been published by Messrs. Crosby Lockwood and Son. The first edition, which appeared in 1892, was reviewed in NATURE for November 24, 1892 (vol. xlvii., p. 75). In the present issue, not only has the size of the volume been increased by more than fifty pages, but very many paragraphs have been re-cast and fresh matter inserted. The work of Buchner and others on zymase has been dealt with, and a synoptic table of enzymes has been included.

A NEW edition of "The Imperial Gazetteer of India" is announced by the Oxford University Press. This may be considered as a new work rather than a new edition, and it will consist of twenty-six volumes, including a companion atlas. Apart from the historical volume and a few other chapters of the Indian Empire, the whole of this work has been written by officials in India under orders of the Indian Government, and every page has been submitted to the criticism of the several administrations or departments concerned.

OUR ASTRONOMICAL COLUMN.

COMET 1907*b* (MELLISH).—The following elements and ephemeris for comet 1907*b* have been computed by Messrs. Lamson and Frederick from places observed on April 15, 16, and 17:—

Elements.

$$T = 1907 \text{ March } 27{\cdot}56 \text{ (G.M.T.).}$$

$$\left.\begin{array}{r} \infty = 328^\circ\ 47' \\ \Omega = 189^\circ\ \ 7' \\ i = 110^\circ\ 12' \end{array}\right\} 1907{\cdot}0$$

$$\log q = 0{\cdot}924$$

Ephemeris 12h. Greenwich M.T.

1907	α h. m.	δ ° ′
April 22	7 46	+35 36
,, 26	8 4	+40 58
,, 30	8 17	+44 17

The brightness is decreasing rapidly, from 0·59 on April 18 to 0·11 on April 30, the unit of brightness being that when the comet was first discovered (mag. 11·0). The comet is now circumpolar, and is travelling through the constellation of the Lynx, in a north-easterly direction, towards Ursa Major (Kiel Circular, No. 96).

A NEW VARIABLE OR NOVA, 156.1906.—In the *Atti della Reale Accademia dei Lincei*, vol. xvi. (fifth series), p. 241 (March 3), Prof. E. Millosevich records the observations of a faint star which is certainly an interesting variable, and may prove to be a fading Nova. On November 6, 1906, the star in question was first noticed as a yellow object of magnitude 8·4, its position being

$$1906{\cdot}0 \quad \alpha = 1\text{h. } 23\text{m. } 56{\cdot}59\text{s.}, \quad \delta = +50^\circ\ 22'\ 12''{\cdot}1.$$

Subsequent observations showed that the star was fading, the decrease in brightness being roughly proportional to the time, and amounting to about 0·3 magnitude in ten days. By February 26, 1907, the magnitude had decreased to 12·3, the colour, in the interval, having passed through successive stages from yellow to red to quite a ruby-red, which was still notable on February 19, when the magnitude was but 12·0.

THE ALBEDOES OF THE SUPERIOR PLANETS.—A novel method of calculating the albedoes of the superior planets is suggested by Mr. J. E. Gore in No. 382 of the *Observatory* (p. 172, April). The mass of the brighter component of α Centauri is equal to that of the sun, and their spectra are similar; thus the star may be considered as a duplicate of the sun, and Mr. Gore proposes to estimate the albedoes of the superior planets by comparing their photometric magnitudes when in opposition with that of α Centauri.

In a previous paper Mr. Gore has shown that, taking the parallax of the star to be $0''{\cdot}75$, and assuming the diameter of its brighter component to be the same as that of the sun, the apparent brightness of our central luminary is 75,232,650,000 times that of the brighter component of α Centauri.

Connecting this with the amount of sunlight inter-